Roll No. .....

22002

M. Sc. Chemistry 2nd Semester Examination – May, 2019

PHYSICAL CHEMISTRY-II

Paper : CY(H)-202

Time : Three hours] ***[Maximum Marks : 80***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any ***five*** questions, selecting at least ***one*** from each Unit. Question No. 1 is ***compulsory***. All questions carry equal marks.

1. (a) What is probability distribution function?

(b) What are spherical harmonics?

(c) What is competitive and non-competitive inhibition?

(d) What is Walden rule?

(e) What are the characteristics of chain length?

(f) What is meant by steady state approximation?

(g) What is an explosion reaction? Give example.

(h) Explain the factors effecting ionic mobility.

$2 \times 8 = 16$

UNIT – I

2. (a) Solve the Schrodinger wave equation for the energy of a particle in three. 12

(b) Dimensional box. 4

3. Discuss the shape of p-orbital using the concept of quantum mechanics. Set up the Schrodinger wave equation for a Rigid Rotator and obtain equations for the energy eigen values and normalized eigen function. 16

UNIT – II

4. (a) Discuss the Third law of thermodynamics and its limitations. 8

(b) Discuss Clausius-Clayperon's equation [illegible] application.

5. (a) Discuss phase diagram of two completely [illegible] components system.

(b) Discuss Phase Diagram of Eutectic system[illegible] congruent and incongruent melting point.

UNIT – III

6. (a) Discuss the general treatment of chain [illegible] and explain the concepts of apparent activ[illegible] energy and chain length.

(b) What are explosion reactions? Discuss by [illegible] H_2-O_2 example.

7. Derive Michalelis-Menton equation of Enzym[illegible] catalyzed equation. Evaluate Michaelis constant [illegible] Lineweaver - Burk and Eadie Hofstae methods. 1[illegible]

UNIT – IV

(a) Explain the rate process approach to ionic migration and derive an equation for the equivalent conductivity on the basis of it. 8

(b) Derive the Nernst Plank's Flux equation and Discuss its consequences. 8

. (a) Give an account of Debye-Huckel-Onsager theory of conductance of strong electrolytes. 8

(b) Write a note on the Onsager Phenomenological equations. 8

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